SYNTHESIS, STRUCTURAL CHARACTERIZATION, ANTIMICROBIAL PROPERTIES AND DNA-BINDING STUDIES OF PEFLOXACIN-Zn(II) COMPLEX

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Pefloxacin is a synthetic chemotherapeutic agent used to treat severe and life threatening bacterial infections. Pefloxacin is commonly referred to as a fluoroquinolone (or quinolone) drug and is a member of the fluoroquinolone class of antibacterials. Pefloxacin Zinc(II) metal complex was synthesized. Synthesized PEF-Zn(II) complex was characterized by analytical and spectroscopical methods. Further studies Zn(II) complex of PEF screened against gram positive, and gram negative bacteria and also fungi. In addition to these studies electrochemical properties of PEF-Zn(II) complex was investigated by cyclic voltammetry (CV). In electrochemical studies, glassy carbon electrode was used as a working electrode. As electrochemical properties, first oxidation/reduction properties of metal complex were investigated. Furthermore pH, nature of buffer, and scan rate dependence of PEF-Zn(II) complex was also investigated.

Also, the interaction of PEF-Zn(II) complex with calf thymus DNA (CT-DNA) was studied spectroscopic and electrochemical techniques. In electrochemical techniques, CV technique was used with glassy carbon working electrode. The changes in the experimental parameters (the concentration of DNA) were also studied with glassy carbon electrode. Results of this experiment, DNA binding properties of PEF-Zn(II) complex was found out.

Figure 1. DNA interaction of PEF-Zn(II) complexes; a) PEF-Zn(II) b) PEF-Zn(II) and 250 μL DNA c) PEF-Zn(II) and 500 μL DNA d) PEF-Zn(II) and 1000 μL DNA.